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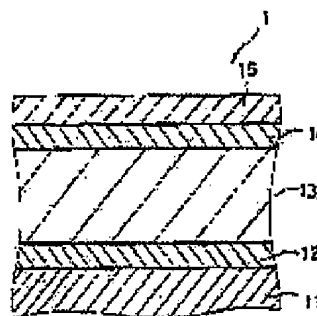
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## (54) LIGHT-DISPLACEMENT TRANSDUCER AND SENSOR

## (57)Abstract:

**PURPOSE:** To follow and detect even a minute displacement with good accuracy by providing an elastic layer between an absorbing layer and a reflecting layer and detecting the change of the thickness of the elastic layer.

**CONSTITUTION:** An absorbing layer 12, an elastic layer 13 and a reflecting layer 14 are sequentially formed on a substrate 11, thereby constituting a light-displacement transducer 1. A protecting layer 15 is provided over the reflecting layer 14. The substrate 11 is formed of resin or glass which is substantially transparent to the illuminating light. A pigment having suitable absorbing and reflecting characteristics is selected for the absorbing layer 12. An elastic body of rubber resin which is substantially transparent to the illuminating light and changes its thickness corresponding to the size of the external pressure is selected for the elastic layer 13. Moreover, a metal having high reflectivity is selected for the reflecting layer 14. When the protecting layer 15 is brought into touch with an outer system, the thickness of the elastic layer 13 is changed by the external pressure. Therefore, the change of the reflectivity or phase can be detected by irradiating light from the rear side of the substrate 11. In this manner, the displacement, stress or pressure can be detected, and the displacement amount from a very small amount to a large amount can be detected with good accuracy.



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